Butler's Gartersnake Conservation Plan

HONEYAGER/FARRELL/KASIAN PARCEL

CITY OF NEW BERLIN
WAUKESHA COUNTY, WISCONSIN

September 30, 2004

NRC Project # 03-181B

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1. Background

A condominium development including roads and other supporting infrastructure is proposed for a location south of West Howard Ave. in the City of New Berlin, Waukesha County, Wisconsin (Figure 1). Four property owners are supporting the Howard Avenue and Sunny Slope Road area development. The state threatened Butler's Gartersnake (*Thamnophis butleri*) is present on a portion of the project site and the Wisconsin Department of Natural Resources (WDNR) has determined that the proposed project will likely result in a taking of this species. The law allows the WDNR to authorize the "taking" of individuals of a listed species that otherwise is prohibited by the law if the following conditions apply:

a) *The taking will not be the purpose of, but will only be incidental to, the carrying out of a lawful activity.*

b) *The party requesting taking authorization will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking.*

c) *The taking will not appreciably reduce the likelihood of the survival or recovery of the endangered species or threatened species within the state, the whole plant-animal community of which it is a part, or the habitat that is critical to its existence.*

d) *The benefit to public health, safety or welfare justifies the activity.*

This Butler's Gartersnake Conservation Plan was developed to minimize and mitigate the proposed taking, and includes a long-term commitment to protection and maintenance of specified areas of habitat for this species.

2. Existing Site Conditions

The property(s) proposed for development that contain Butler's Gartersnake habitat consist of two parcels (Figure 2). The Honeyager parcel, located just south of Howard Avenue, is comprised of horse pastures that have been fallow for the 2004 growing season, wooded uplands and a partially wooded wetland area. Portions of the fallow horse pasture contain crayfish burrows. The Farrell parcel is located just south of the Honeyager parcel and is primarily comprised of wooded uplands and wetlands with pockets of wet meadow and cattail wetland habitat. There is a shallow drainage ditch within a closed canopy stand of boxelder trees that runs along the west property line of the Farrell parcel. This ditch continues west from the southwest corner of the Farrell parcel across the Deer Creek Golf Course and eventually terminates at the confluence with Deer Creek.

3. Snake Habitat Evaluation

The project area was evaluated by a WDNR biologist and a biological consultant on separate occasions for suitability to support Butler's Gartersnakes. These independent evaluations were conducted by means of a meander survey, a review of available Butler's Gartersnake distribution data, and an evaluation of the taxonomic status of this species within the geographic area. In addition, a Butler's Gartersnake presence/absence survey was conducted utilizing a cover object survey on the two subject parcels during July 2004. The snake survey included 12 sampling events that resulted in the capture and identification of one *Thamnophis butleri*. No other individual snakes of any species were captured during this survey.

As a result of the project site evaluation, the most suitable snake habitat is associated with the former Honeyager horse pastures that have recently been left fallow and converted to old field. Based on the WDNR's current Butler's gartersnake Conservation Strategy for Tier II Sites the majority of habitat on the Honeyager parcel was classified as moderate quality, therefore requiring a 180-foot protective setback from the wetland boundary. Habitat on the Farrell parcel, being more wooded, is less desirable habitat, and requires a 75-foot setback.

Butler's Gartersnake distribution data and an evaluation of the taxonomic status of this species within the local geographic area revealed known populations of Butler's Gartersnakes within close proximity on the New Berlin City Center property to the west and the proposed Woodridge Community Church property to the northeast. Figure 3 outlines the area identified by the WDNR as suitable snake habitat and the recommend habitat protection setback distances from wetlands. The total snake habitat area, including wetlands is estimated to be 13 acres. The area of snake habitat within the 180-foot and 75-foot setback, including wetlands, is about 6.85 acres.

4. Estimated Impacts & Project Benefits

The proposed development plan includes new residential structures, portions of new roads and three new stromwater management ponds within the recommended habitat setback area. The total area of proposed encroachment into the habitat protection setback is 4.70 acres. However, once constructed, the stormwater ponds and adjacent upland areas will be restored and maintained as snake habitat management areas. The total area to be designated for snake habitat on the two development parcels is approximately 2 acres.

To mitigate for the remaining habitat losses, portions of the Deer Creek Golf Course (located west of the proposed development) will be designated and managed as Butler's Gartersnake habitat (Figure 4). This golf course habitat management area will include a connection to the proposed development habitat management area. The total area of new habitat associated with the golf course will be approximately 7.60 acres. Therefore, the total area of designated and managed snake habitat will be approximately 9.60 acres. This will result in a net increase of about 2.75 acres more than the 6.85 acres (including wetlands) originally included within the habitat setback and 4.90 acres more than the proposed 4.70 acre habitat setback encroachment.

The plan also will include the enhancement of remaining snake habitats within the development site that are currently of moderate to poor quality (based on the definitions used in the WDNR's current Butler's Gartersnake Conservation Strategy), while accomplishing

the proposed condominium development project. Furthermore, this conservation plan will establish a contiguous corridor between the Honeyager-Farrell habitat area and the preserved Butler's Gartersnake habitat area on the New Berlin City Center property. This corridor will allow two relatively isolated snake populations to travel reasonably unobstructed between the connected habitat areas.

5. Implementation Requirements

The following required actions will be implemented to minimize and mitigate for potential impacts to Butler's Gartersnakes resulting from the development project described above.

5.1 Minimizing Take

Reduction of take shall be accomplished by excluding snakes from construction areas. Trenched-in (barrier) fencing is to be installed prior to March 15 to exclude snakes from re-occupying habitat located within the construction footprint. Snakes typically move down-slope into wetlands for winter hibernation. The recommended location of Seasonal Isolation Fencing for this project is shown in Figure 5. This fencing should be installed between November 1 and March 15 prior to construction. Construction may then begin upslope of this fence without concern for snake mortality. For added insurance, orange construction fence should be installed immediately upslope from the silt fence to aid in keeping contractors from damaging the isolation fencing during construction.

Standard trenched-in sediment fencing is recommended and the support stakes should be positioned on the upslope side of the fencing material to reduce the risk of snakes climbing the fence. The fence skirt must be buried a minimum of 4 inches into the soil as snakes can push under even small openings and/or loose flaps. Soil must be backfilled into the trench and compacted. Where two fabric sections meet, the two end stakes should be wrapped around each other so that there is no gap between the end stakes. The fence must be inspected twice each week on non-consecutive days (approximately every 3 days), and after rain events. Repairs must be made to any fencing failures within 24 hours. By using higher quality fencing, such as Mirafi HP570 Woven Geotextile Fencing, fewer repairs and greater permanence can be expected, and is recommended. Fences do not need to be maintained between November 2 and March 14, while the snakes are inactive and underground. However, the fence must be maintained (outside of this time period) until all earth-moving operations and final site stabilization associated with the project are complete.

5.2 Mitigation

Snake population protection and recovery will be improved by new habitat creation and post-construction habitat recovery and enhancement. Butler's Gartersnakes prefer

relatively open canopy habitats including savannas, grasslands, sedge meadows, marshes and shrub wetlands. The following snake habitat restoration plan has been developed to restore designated areas to native plant communities by a combination of seeding, planting, monitoring and management. The primary elements of the plan include site preparation, seeding and planting, and long-term management commitments (as long as the Butler's Gartersnake remains a listed species) implemented through property deed restrictions. The deed restrictions will require implementing long-term habitat management protocols and will include seasonal and technical constraints on the use of burning, herbicide application, and mowing for maintaining Butler's Gartersnake habitat.

Objectives of this plan are to improve and enhance habitat for the Butler's Gartersnake in designated management areas of the proposed development project and on the adjacent golf course property. The primary goal of the snake management plan is to develop and manage upland snake habitat for 0-70% canopy closure with a diverse native plant community of grasses and forbs. In addition, the ditch crossing (box culvert) will be designed to allow favorable snake passage under the new road (Figure 6). These goals will be accomplished by planting native vegetation communities, controlling invasive plant species, and long-term management of the site to maintain preferred plant communities.

There are three locations identified as snake habitat management areas (Figure 7). Management Area 1 runs along the west side of the Deer Creek Golf Course, adjacent to Deer Creek. Management Area 2 is within a grassy drainage ditch that runs east across the golf course connecting Management Area 1 with Management Area 3. Management Area 3 is associated with the new stormwater management ponds and adjacent uplands and wetlands.

Management Area 1

This area currently consists of golf course "rough" and is typically maintained at a height no greater than 4 inches. There is a combination of low landscape berms, level ground and a gravel trail within this management area. Restoration and management recommendation is to allow the existing herbaceous vegetation grow and be maintained at a minimum height of 12 inches. If necessary, some areas may require improving the plant community through seeding/plantings and controlling undesirable invasive plant species. Tables 1and 2 provide examples of a low-growing prairie seed mix and moist meadow mix that would be suitable for this area.

Management Area 2

This area consists of mowed fairway grass within a shallow drainage ditch.

There are several round culverts within this ditch that provide golf cart crossings. The habitat restoration and management recommendation for this management area is to allow the herbaceous vegetation to grow and be maintained at a minimum height of 12 inches. The band of vegetation will extend approximately 5 feet up slope on either side of the ditch from the "dry" edge of the ditch bottom. This vegetation band should flair wider at each culvert location to allow snake passage around the fairway culverts (Figure 4 and 7). In addition, several box elder trees currently growing along the ditch may be removed to promote more herbaceous vegetation growth between Fairway #1 and Fairway #2. Supplemental seeding may be needed in the areas of tree removal.

Management Area 3

This area will include establishing and maintaining new snake habitat along the proposed stormwater management pond slopes and within adjacent upland areas of the outlot (Figure 7). Tables 1 and 2 provide herbaceous vegetation seed mixes suitable for this area. Also, box elder trees shall be removed along the drainage ditch located between the Kasian and Farrell properties in order to provide a habitat continuum from Management Area 2 to Area 3. The tree canopy in this corridor will be reduced to a 30-50% canopy cover. A road crossing culvert is proposed within this drainage ditch and will need to meet certain design criteria in order to encourage snake passage. The proposed box culvert will be designed with two 1.5-foot wide raised passage on each side of the culvert that will be above the ordinary water base flow level, and will provide a minimum of 3.5 feet of clearance between the raised passage feature and the ceiling of the culvert (Figure 6).

5.3 Conservation Plan Schedule

Snake habitat restoration within Management Area 1 could commence as early as fall of 2004 or spring of 2005 beginning with seedbed preparation. Once the seedbed is properly prepared the short-grass prairie and/or moist meadow seed mix will be installed.

Tree removal within Management Area 2 will be conducted during the winter of 2004 and existing vegetation within this area will be allowed to grow to a height of at least 12 inches during the spring of 2005 and will be maintained at a minimum of 12 inches in height during the snake's active season (March 15-October 31)..

Development construction (stormwater management ponds, infrastructure, etc.) within Management Area 3 is expected to begin during the fall/winter of 2004/2005 respectively. The trenched-in snake barrier sediment fencing will be installed around the perimeter of on-site wetlands prior to March 15, 2005 and seedbed preparation will begin once construction work within this Management Area is complete. A short-grass prairie seed mix and/or moist meadow seed mix will be installed when site conditions are suitable after construction is completed. If allowed by the City of New Berlin, tree removal along the drainage ditch between the Kasian parcel and Farrell parcel will occur during the winter of 2004/2005 to allow for snake habitat development adjacent to this ditch.

5.4 Habitat Monitoring and Management

Designated snake habitat areas should be monitored annually for the first five years using a qualitative meander method to determine the presence and relative abundance of invasive and nuisance plant species. There needs to be less than 45% of the snake habitat cover comprised of the following invasive/nuisance species: reed canary grass, common reed, cattail, stinging nettle, and purple loosestrife. At least 65% of the snake cover should be non-invasive species. If invasive/nuisance species comprise less than 45% of the snake habitat after five years then monitoring can be reduced to once every three years. If such species comprise more than 45% of the snake habitat after five years, then continued treatment and annual monitoring will be performed until the target goals are achieved.

The designated habitat areas should be managed in perpetuity as per the WDNR approved Recommended Management Protocols for the Butler's Gartersnake, *Thamnophis butleri*, in Wisconsin (Hay & Casper, 2000). This document provides recommendations for maintaining habitats and controlling invasive species by implementing modified burning, mowing, herbicide and hand cutting techniques.

5.5 Seed Mixes

Soil and vegetation conditions will be further evaluated within Management Area 1 prior to seedbed preparation and within Management Area 3 upon completion of construction activities to determine if there are variability factors that should be considered for prescribing the appropriate seed mix. It is likely that a combination of a low-growing prairie mix for medium soils and a moist meadow mix will be used where appropriate.

TABLE 1

Low-growing Prairie Mix for Medium Soils

(Apply at 10 lbs./acre)

Grasses	
Sideoats Grama	*Bouteloua curtipendula*
Junegrass	*Koeleria cristata*
Prairie Dropseed	*Sporobolu heterolepis*
Little Bluestem	*Schizachyrium scoparium*
Forbs (at least 12 of the following)	

Nodding Onion	*Allium cernuum*
Butterflyweed	*Asclepias tuberose*
Sky-blue Aster	*Aster azureus*
Smooth Aster	*Aster laevis*
Canada Milk Vetch	*Astragalus canadensis*
Cream False Indigo	*Baptisia bracteata*
New Jersey Tea	*Ceanothus americanus*
Prairie Coreopsis	*Coreopsis palmate*
Purple Prairie Clover	*Dalea purpurea*
Shooting-star	*Dodecatheon meadia*
Pale Purple Coneflower	*Echinacea pallida*
Western Sunflower	*Helianthus occidentalis*
Prairie Blazing Star	*Liatris pycnostachya*
Great Solomon's Seal	*Polygonatum canaliculatum*
Black-eyed Susan	*Rudbeckia hirta*
Stiff Goldenrod	*Solidago rigida*
Showy Goldenrod	*Solidago speciosa*
Ohio Spiderwort	*Tradescantia ohiensis*
Golden Alexander	*Zizia aurea*

TABLE 2

Moist Meadow Mix

(Apply at 7 lbs./acre)

Graminoids	

Bebb's Oval Sedge	*Carex bebbii*
Brown Fox Sedge	*Carex vulpinoidea*
Common Fox Sedge	*Carex stipata*
Big Bluestem	*Andropogon gerardii*
Rattlesnake Grass	*Glyceria canadensis*
Reed Mana Grass	*Glyceria grandis*
Switch Grass	*Panicum virgatum*
Prairie Cordgrass	*Spartina pectinata*
Bluejoint	*Calamagrostis canadensis*
Forbs	
Angelica	*Angelica atropurpurea*
Marsh Milkweed	*Asclepias incarnata*
New England Aster	*Aster novae-angliae*
Boneset	*Eupatorium perfoliatum*
Joe-pye Weed	*Eupatorium maculatum*
Grass-leaved Goldenrod	*Euthamia graminifolia*
Sneezeweed	*Helenium autumnale*
Tall St. John's Wort	*Hypericum pyramidatum*
Prairie Blazing Star	*Liatris pycnostachya*
Cardinal Flower	*Lobelia cardinalis*
Water Horehound	*Lycopus americanus*
Winged Loosestrife	*Lythrum alatum*
Ditch Stonecrop	*Penthorum sedoides*
Obedient Plant	*Physostegia virginiana*
Virginia Mountain-Mint	*Pycnanthemum virginianum*

Sweet Black-eyed Susan	*Rudbeckia subtomentosa*
Cutleaf Coneflower	*Rudbeckia laciniata*
Cup Plant	*Silphium perfoliatum*
Prairie Dock	*Silphium terebinthinaceum*
Riddell's Goldenrod	*Solidago riddellii*
Purple Meadow-rue	*Thalictrum dasycarpum*
Blue Vervain	*Verbena hastata*
Ironweed	*Vernonia fasiculata*
Culver's Root	*Veronicastrum virginicum*
Golden Alexander	*Zizia aurea*